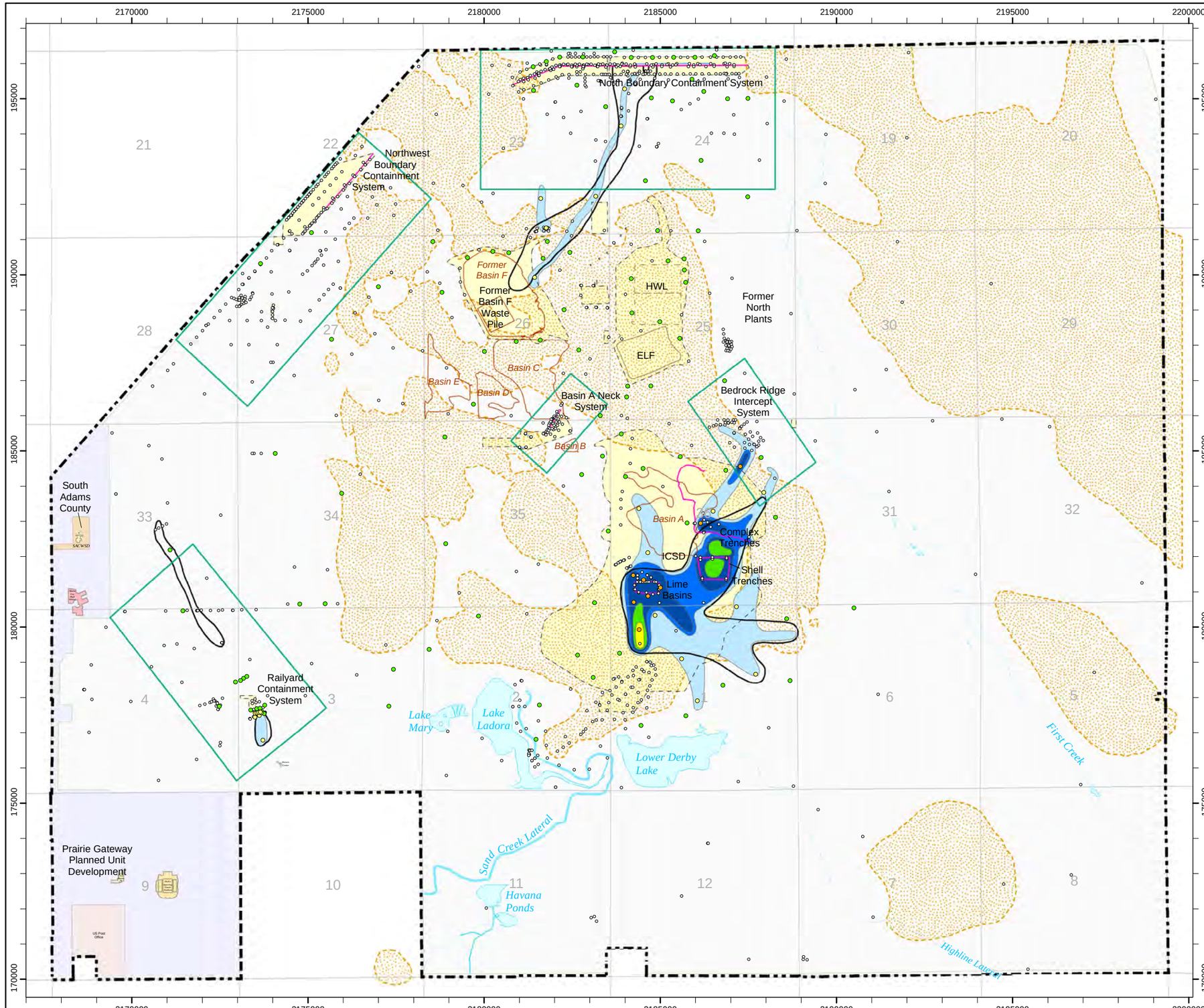

2014 Dibromochloropropane (DBCP) Concentrations in the Unconfined Aquifer

Legend

- Open Unconfined Flow System Wells

Water Quality Tracking Wells

- Chemical detected above the CSRG
- Chemical detected at or below the CSRG
- Chemical below the MRL
- U.S. Army Maintained Area
- USFWS Managed Area
- Prairie Gateway Planned Unit Development
- South Adams County
- U.S. Post Office
- Section Lines
- Operational Areas
- Basins
- Unsaturated Alluvium (Developed using summer 2014 data)
- Slurry Walls
- Recharge Trenches
- Intermittent Streams
- Ditches, Canals
- Sand Creek Lateral
- 1994 Dibromochloropropane (DBCP) Concentration greater than the 1994 MDL of 0.2 µg/L

2014 Dibromochloropropane (DBCP) Concentrations in µg/L

- 0.02 to < 0.2
- 0.2 to < 5
- 5 to < 50
- 50 to < 1,000
- 1,000 to < 2,000

Figure 5.1.5.1-12

N

0 1,440 2,880
Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RVO GIS, PMC, OMC, Shell/URS Corp.

Army/Shell GIS

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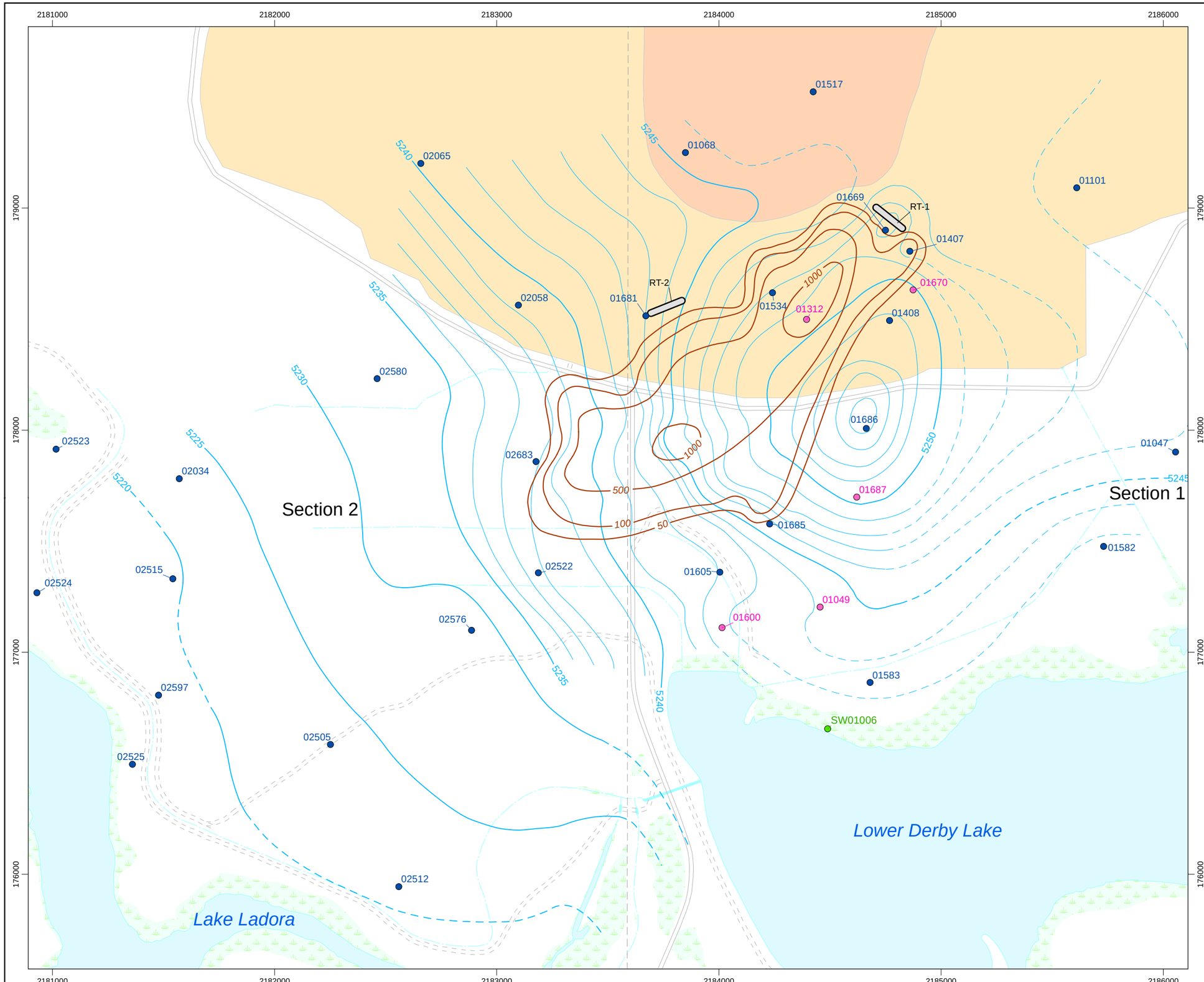

South Tank Farm System GWMR Post-Shut-Off Monitoring Well Location Map

Legend

- LTMP Water-Level Tracking Wells
- GWMR Water Quality Wells
- Surface Water Sampling Location
- Recharge Trench
- Water Table Contour - Sep. 2010
- Inferred Water Table Contour - Sep. 2010
- 2009 Isoconcentration of Benzene in mg/L
- Paved Road
- Unpaved Road
- Section Line
- Ditch, Spillway
- Culvert, Siphon, Sluice, Weir
- RCRA-Equivalent Cover
- 3-foot Soil Cover
- Lake or Pond
- Wetland

N

0 400 800

Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.5.2-1

Army/Shell GIS

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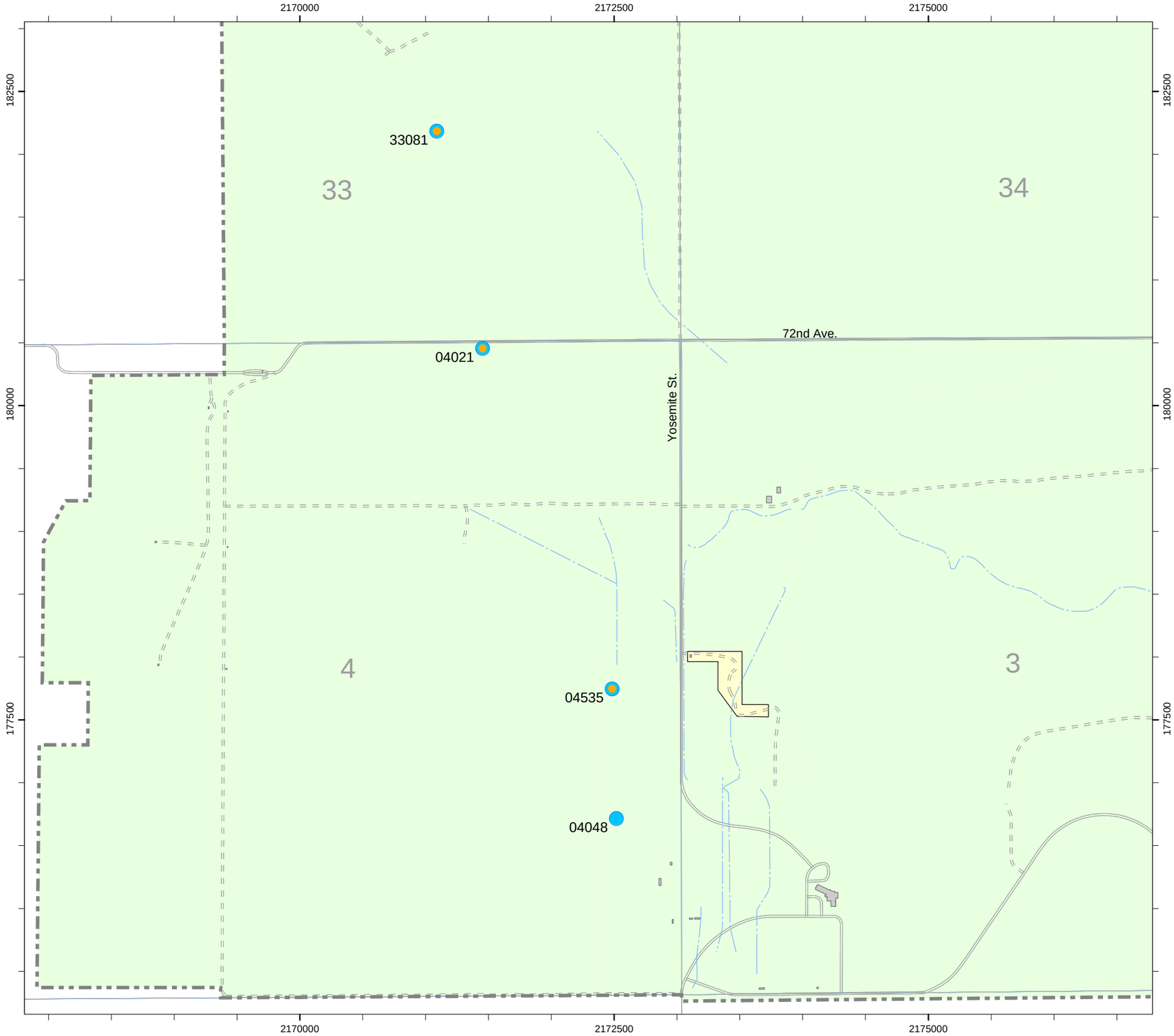

Rocky Mountain Arsenal MPS/ICS Post-Shut-Off Monitoring Well Location Map

Legend

- Water Quality Network Well
- Water Level Network Well
- Ditches
- Paved Roads
- Unimproved Roads
- Section Lines
- Buildings
- Army Maintained Area
- USFWS Managed Area
- RMA Boundary

N

0 840 1,680
Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.5.2-2

Army/Shell GIS

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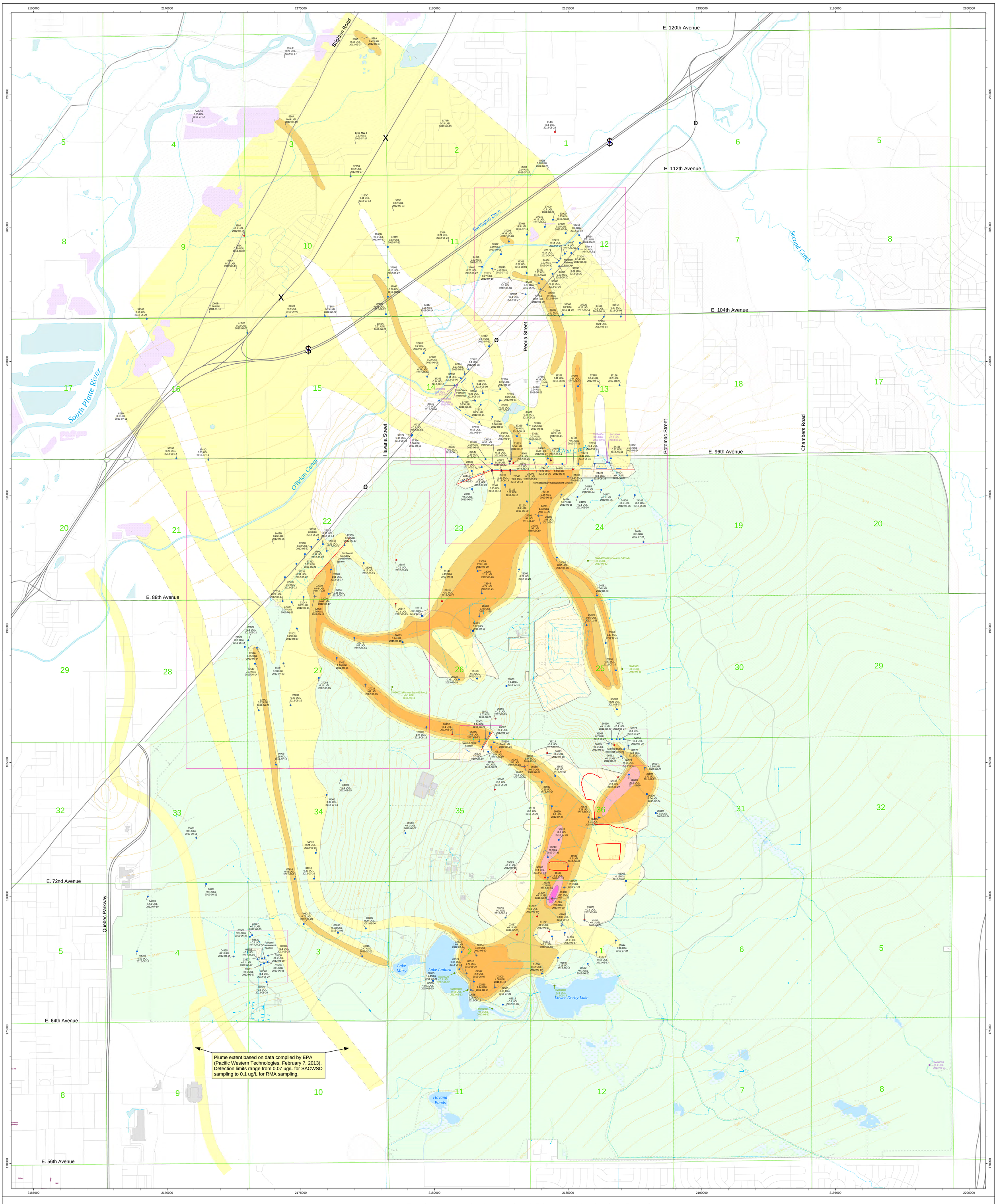

Rocky Mountain Arsenal 1,4-Dioxane Monitoring Results

- U.S. Army Maintained Area
- USFWS Managed Area
- Treatment System Boundary
- Section Lines
- Buildings
- Lakes, Ponds, Canals, Ditches
- Gravel Pit
- Augmentation Pond
- Dry Lake Areas
- Wetlands
- Slurry Wall
- Recharge Trench
- Intermittent Streams
- Ditches
- Culverts, Siphons, Sluices, and Weirs
- Offpost Primary Roads
- Offpost Secondary Roads
- Offpost Light Duty Roads

Flow System Monitoring Locations
- Confined Flow System
- Unconfined Flow System
- NBCS UFS Denver Wells

Surface Water Monitoring Locations
- Short-Term Locations
- LTMP Locations

- Water Level Contour - 2012
- Approximate Water Level Contour - 2012
- Unsaturated Alluvium (Developed using summer 2012 data)
- Low Permeable Alluvial Sediments 2012

Unconfined Flow System
Contour Intervals (µg/L)
- 0.10 to 0.35
- 0.35 to 1.00
- 1.00 to 10
- 10 to 100
- 100 or Greater

N

0 1,000 2,000 3,000
Feet
State Plane Coordinate System, CO North Zone
NAD27-NGVD29 Datum

Sources: US Army BIMS, USGS, RMA GIS, Navarro Research and Engineering, Inc.

Figure 5.1.5.3-1

Army / Shell GIS

9/9/2016 RMITS

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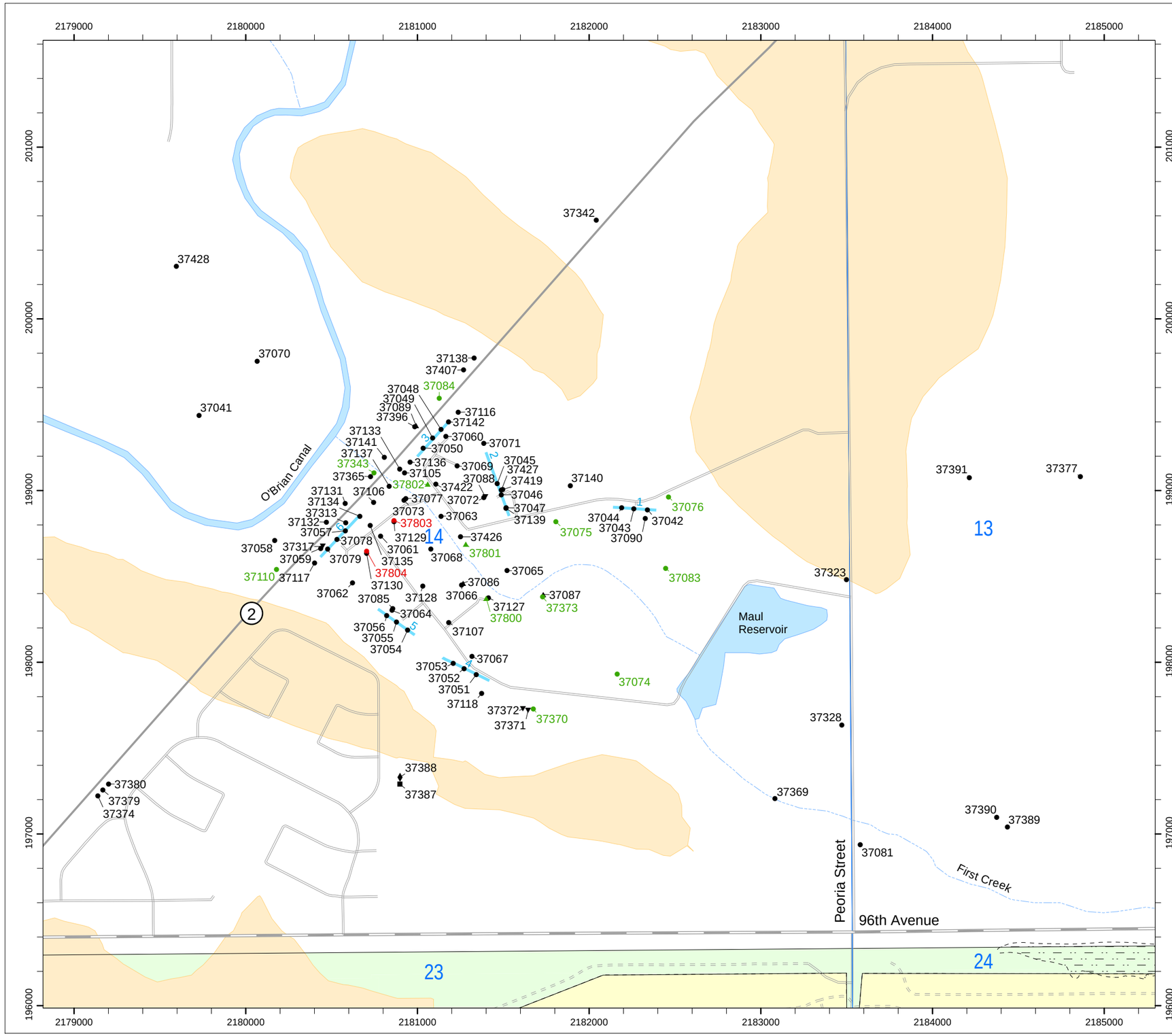
FY14 First Creek Pathway Monitoring Well Network of the Unconfined Aquifer



Legend

- Performance Water Quality Wells
- Performance Extraction Wells
- Extraction Wells
- Recharge Wells

Monitoring Wells

- Confined Flow System
- Unconfined Flow System
- Questionable Unconfined Flow System
- Questionable Confined Flow System
- Questionable Flow System
- Recharge Trenches
- Local Roads
- Secondary Roads
- Primary Roads
- Unimproved Roads
- Dry Lake Areas
- Lakes, Ponds, and Rivers
- Intermittent Streams
- Ditches
- Section Lines
- Unsaturated Alluvium (Developed using summer 2014 data)
- Army Maintained Area
- USFWS Managed Area

N

0 150 300 600
Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.2.1-1

Army/Shell GIS

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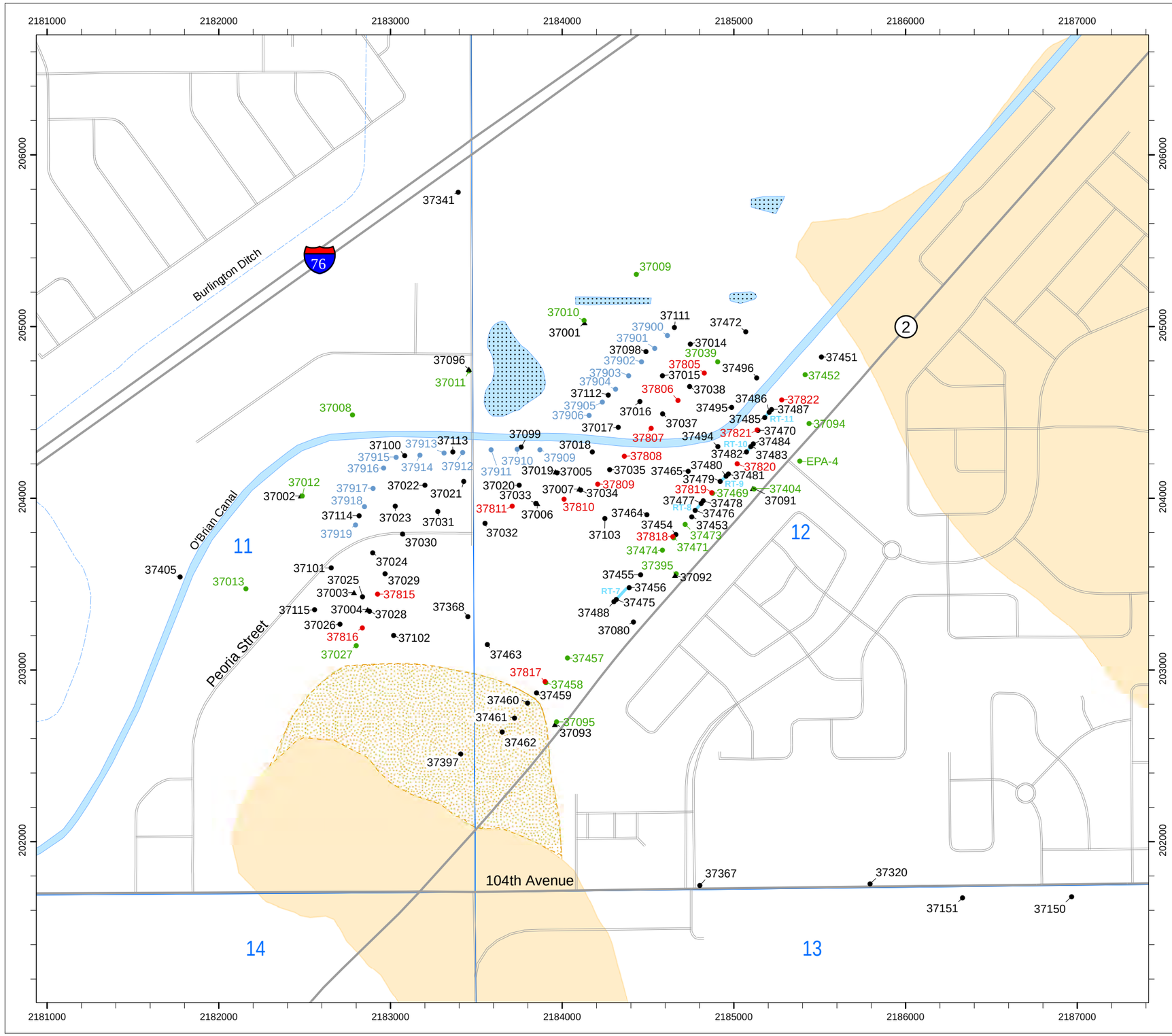

FY14 Northern Pathway Monitoring Well Network of the Unconfined Aquifer

Legend

- Performance Water Quality Wells
- Extraction Wells
- Recharge Wells
- Monitoring Wells
  - Confined Flow System
  - Unconfined Flow System
- Recharge Trenches
- Light Duty Roads
- Primary Roads
- Ditches
- Lakes, Ponds, Rivers
- Gravel Pits
- Section Lines
- Unsaturated Alluvium (Developed using summer 2014 data)
- Low Permeability Alluvial Sediments

N

0 150 300 600
Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.2.1-2

Army/Shell GIS

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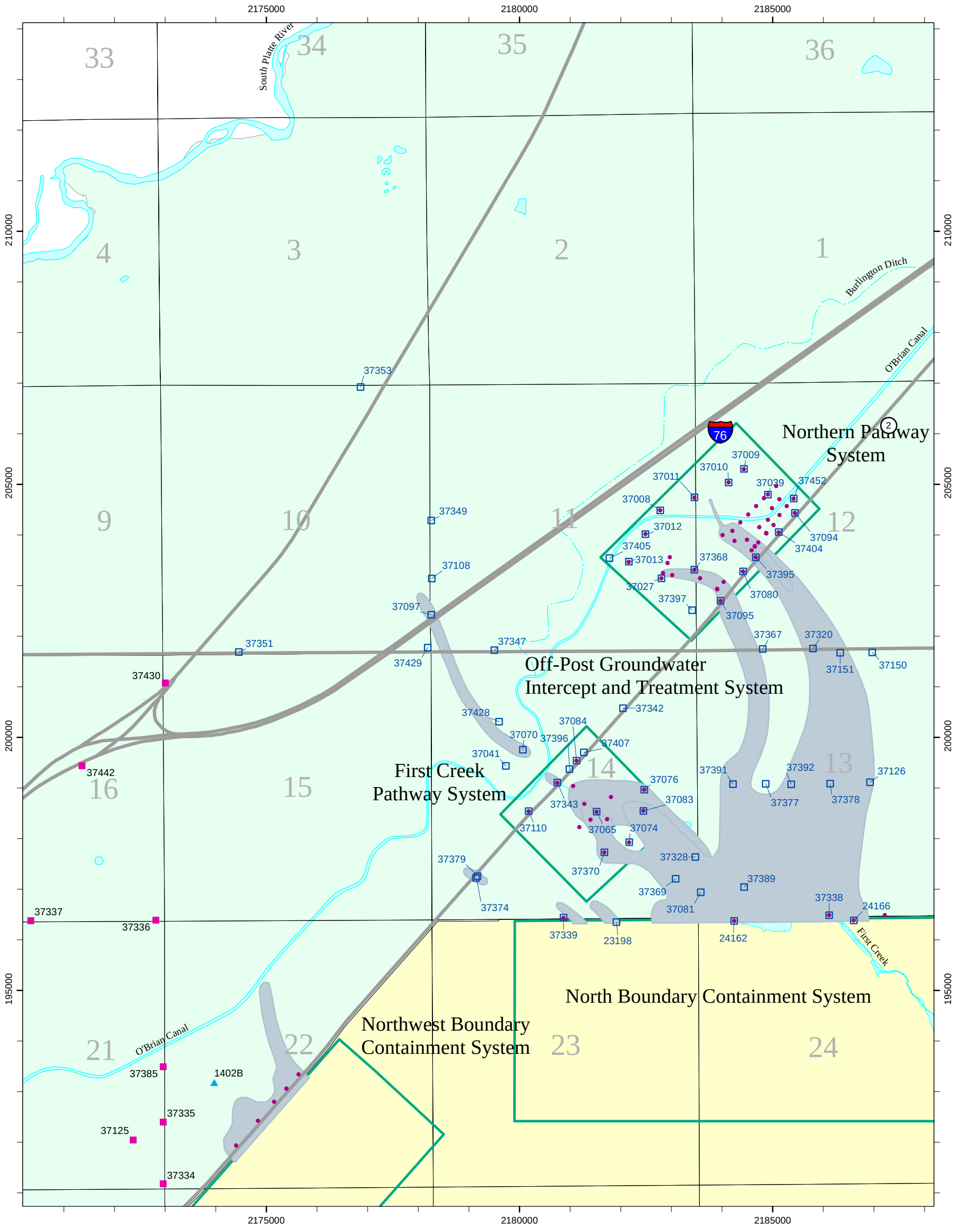

Exceedance Monitoring Wells

- Rocky Mountain Arsenal (On-Post Operable Unit)
- Off-Post Study Area
- Operational Areas
- 2014 CSRG Exceedance Areas for Carbon Tetrachloride, Dieldrin, and DIMP.
- Section Line
- Lakes, Ponds, Rivers
- Intermittent Streams
- Ditches, Canals
- Primary Roads

- CSRG Exceedance Monitoring Wells
- Water Quality Operational Wells
- Private Well
- Proposed Addition to CSRG Exceedance Network

0 1,000 2,000
Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.2.2-1

N

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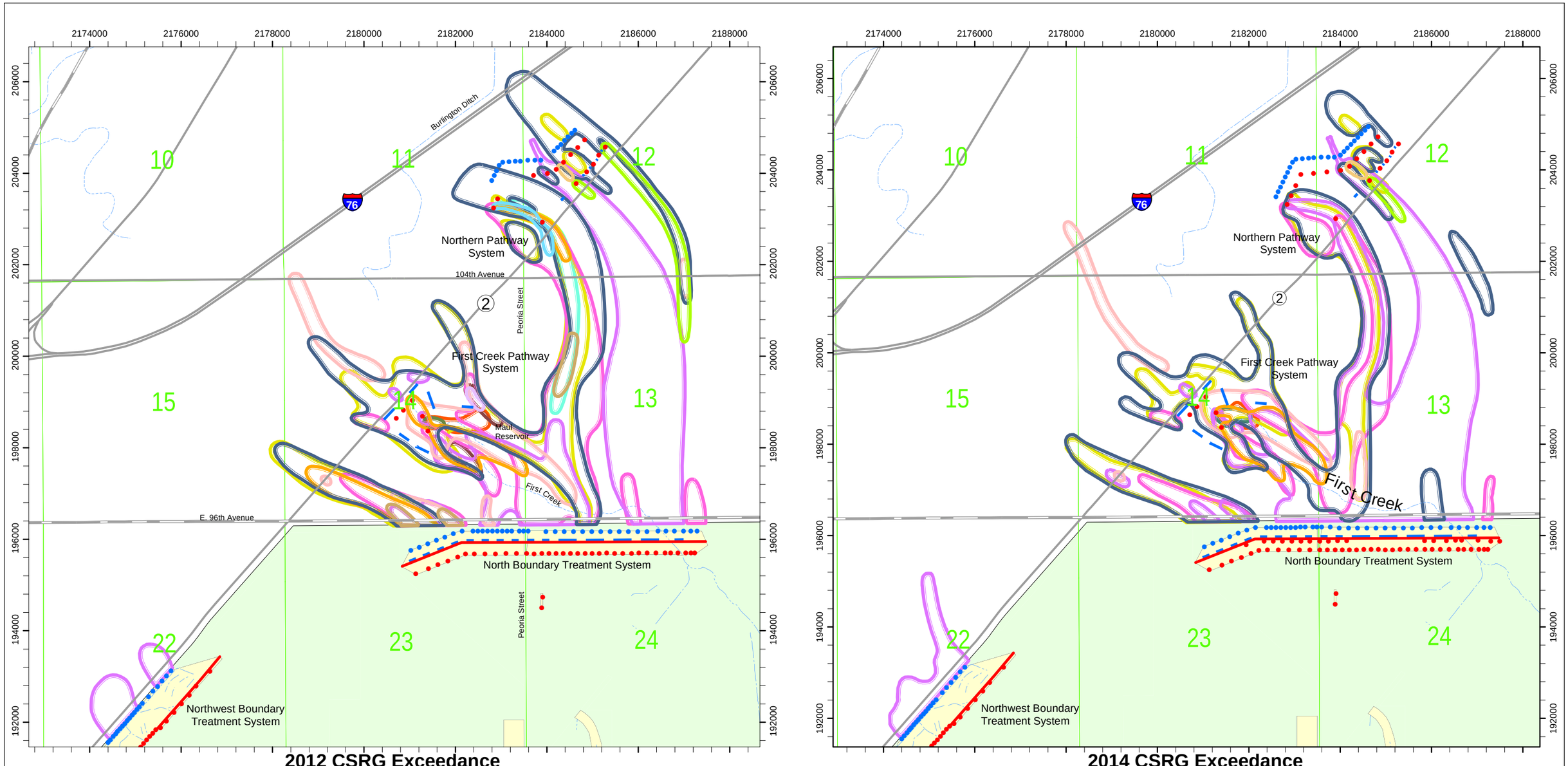

Aldrin (ALDRN) Plume
Arsenic (AS) Plume
Carbon Tetrachloride (CCL4) Plume
Chloroform (CHCL3) Plume
Chloride (CL) Plume
Chlordane (CLDAN) Plume
Dicyclopentadiene (DCPD) Plume
Diisopropylmethylphosphonate (DIMP) Plume
Dieldrin (DLDRN) Plume
Fluoride (F) Plume
Isodrin (ISODR) Plume
n-Nitrosodimethylamine (NNDMEA) Plume
2,2-Bis (p-chlorophenyl) -1,1,1-Trichloroethane (PPDDT) Plume
Sulfate (SO4) Plume
Tetrachloroethylene (TCLEE) Plume
1,2-Dichloroethane (12DCLE) Plume
Extraction Well
Recharge Well
Slurry Walls
Recharge Trenches
Secondary Roads
Primary Roads
Intermittent Streams
Ditches
Section Lines

Exceedance Maps for 2012 and 2014

Figure 5.2.2-2

0 1,000 2,000 3,000
Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

N

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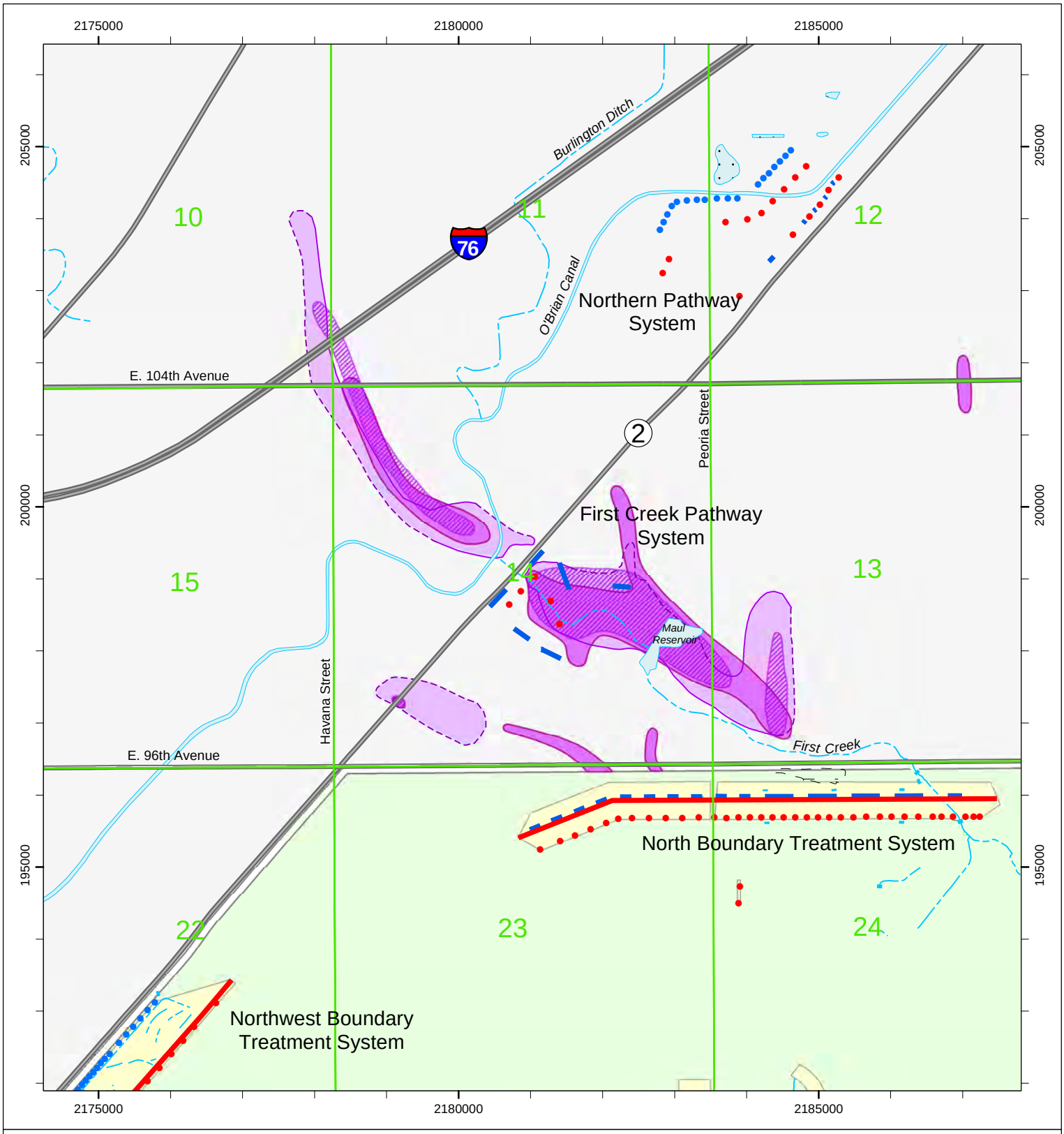

DIMP Exceedance Area Comparisons 2009, 2012, & 2014

Legend

- Extraction Wells
- Recharge Wells
- Slurry Walls
- Recharge Trenches
- Army Manintained Area
- USFWS Managed Area

DIMP Concentrations >= 8 ug/L
(Dashed outlines where approximate)

- 2014
- 2012
- 2009

N

0 1,000 2,000 Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.2.2-3

Army/Shell GIS

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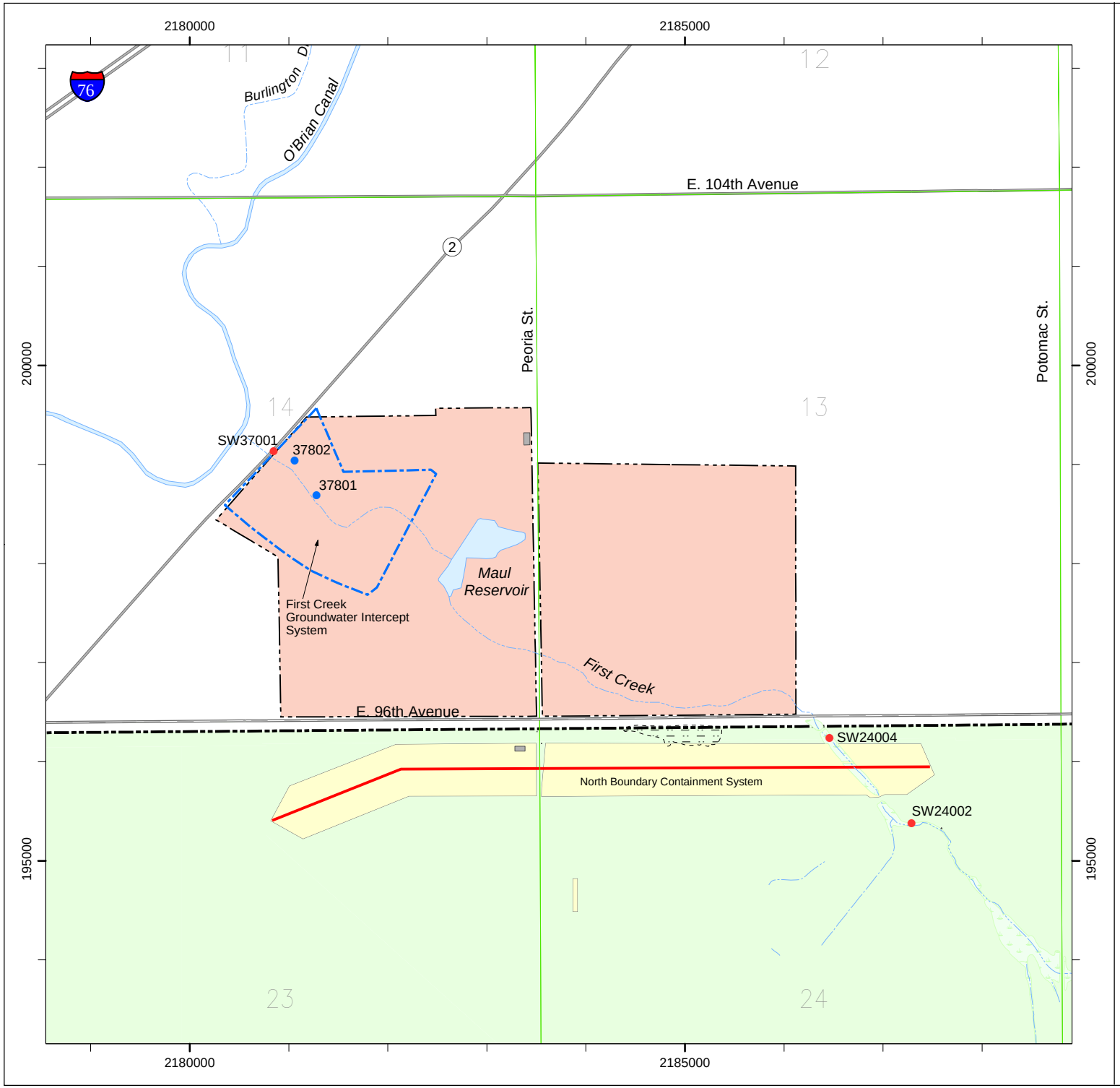

Rocky Mountain Arsenal Off-post Surface Water Monitoring Locations

Legend

- Rocky Mountain Arsenal
- Army Manintained Area
- USFWS Managed Area
- Lakes, Ponds, and Rivers
- Wetlands
- Dry Lake Areas
- Buildings
- First Creek Groundwater Intercept System
- Shell Property
- Section Lines
- Intermittent Streams
- Ditches
- Slurry Walls
- Surface Water Sites
- Selected Groundwater Wells

N

0 350 700 1,400
Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.2.4-1

Army/Shell GIS

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